## Yes, the Trees Have Noticed the Warmer Temperatures

*by Karen Longeteig*

Even if you never heard of global warming, as a plant lover you may have suspected that something is going on. Most species bloom a full week earlier than they did 100 years ago, as shown by records in the Arnold Arboretum's herbarium, and sugar maples started running sap six weeks early this year.

Global warming has a bad effect on trees in both forests and cities. The projected 2°C (3.6°F) warming of the earth could shift the ideal range for many North American forest species north by about 200 miles. Serious projections show the virtual elimination of the sugar maple in Massachusetts. Other plants and trees will not be able to migrate fast enough to find new habitats as the heat encroaches on their existing territory.

Some recent reports suggest that trees are actually net producers of methane, a greenhouse gases 20 times worse than carbon dioxide. While it has long been known that methane is produced by rotting vegetation, the January 12, 2006 issue of *Nature* magazine discusses studies showing that plants give off significant methane by simply growing, and that "planting forests" may contribute to warming.

However, these studies have focused on whether boreal and temperate forests actually contribute to heating by absorbing large amounts of sunlight without losing much moisture. This is not the case in the tropics where higher temperatures and plentiful water result in higher rates of evapotranspiration. Other scientists remind us that methane occurs naturally, has done for millennia, and should not be counted into global warming statistics because it is not the result of human action.

Ken Caldeira of the Carnegie Institute warns that proposals to grow more forests to cool the planet should be greeted with caution. "I like forests. They provide good habitats for plants and animals, and tropical forests are good for climate, so we should be particularly careful to preserve them," he said. "But in terms of climate change, we should focus our efforts on things that can really make a difference, like energy efficiency and developing new sources of clean energy."

Will somebody please put this into perspective? The beneficial effects of trees in cities are unassailable, and their presence contributes significantly to energy efficiency. Any observer will tell you that a street tree can lower the temperature underneath it (by as

much as 20º) and that a large shade tree on the south side of a house can dramatically lower energy consumption for air conditioning. Asphalt shaded by trees lasts longer than asphalt exposed to hot sun, and tree-shaded sidewalks encourage people to walk places rather than using cars. Tree-shaded parking lots conserve fuel by reducing the air conditioning required to cool a hot car, and city trees improve local air quality by absorbing tons of carbon dioxide. Finally, the presence of trees makes a city a more attractive and calming place to live.

In the spirit of thinking globally and acting locally, an intriguing formula that seeks to make reparations for petroleum use by planting trees locally has turned up on the Internet. I have modified this formula for Lexington as follows:

- 1 tree per every 100 gallons of gasoline consumed
- 1 tree per every 1000 kilowatt hours consumed
- 1 tree every 1,300 miles by plane

If this seems like a lot of trees for which to be personally responsible, it probably is, but this only reinforces the need to reduce fossil fuel use! The first two items alone would make an average household liable for planting 15 to 20 trees per year. Could you make the attempt?

One solution for when you run out of space for "reparations" on your own property is to contribute to planting street trees in Lexington. Our street tree population has been diminished by 700 trees in the past ten years due to budgetary constraints on replanting trees lost to development or attrition. Your contributions exclusively for tree planting could go into the Selectmen's Tree Gift Account, c/o Town Office Building.

To learn more about adjusting our gardening habits to global warming, come hear Teri Dunn, an acclaimed author of numerous gardening books, who will give a talk this evening (7 p.m., March 16) in the Meeting Room, lower level of the Cary Library entitled "Gardening in a Warmer World." She will stay after her talk to answer questions and sign books.

*Karen Longeteig is a Lexington landscape designer and a member of the Lexington Tree Committee. This article is brought to you by Lexington Global Warming Action Coalition. Contact us at www.lexgwac.org*